

W. Brock Pratt

with comments of

L. J. Ferris

THE

CAMBRIDGE

COPPER MINE,

Guilford Co., N. C.

Sherwood & Co., Printers.

Ms. E. A. O. 25722.

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PROSPECTUS

OF THE

CAMBRIDGE COPPER MINE.

THE Cambridge Copper Mine, which the undersigned, as agent for the owners is about to offer for sale, is situated in Guilford County, N. C., about 7 miles from the county town of Greensboro, and 4 miles from Jamestown. The North Carolina Central Railroad runs within *a half mile* of the property, and a simple switch in connection with that road will give the mine all the advantages of a special depot. This close proximity to a railroad is very fortunate, and will be appreciated by all familiar with the labor, time and expense of hauling ores, coals, &c., over country roads.

There are about 200 acres of beautifully rolling land attached to and surrounding the mine, which with its numerous springs, its large and comfortable dwelling house, together with all the out-buildings usually found upon a farm of this size, form one of the most attractive places in that section of country. The south line of the tract is but about 160 rods from the property upon the north side of the Gardner estate, where has been lately sunk a shaft which promises greater results for copper than any other yet opened at their mines.

For the very favorable mineralogical character of the vein, particular formations of the surface, &c., &c., especial reference is craved to the exact and elaborate reports of Dr. F. A. Genth, of Philadelphia, and of Professor Ernest Haeusser, of this city, hereto annexed.

It will be observed by these reports that a perpendicular shaft has been sunk to a depth of 84 feet, cutting the vein at a

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depth of 75, and thence continued 14 feet more on the slope. At the bottom of this shaft levels have been driven, showing the vein beautifully developed and on an average 7 feet in width.

"Red and black oxide of copper, copperglance, indigo copper, copper pyrites, malachite, [green carbonate,] and chrysocolla, [silicate of copper,]" are the ores chiefly found in the vein. Barnhardite also, "an ore which contains 46 per cent. of copper, and which has not been found at any of the other copper mines in the neighborhood of the Cambridge mine," occasionally occurs.

The copper pyrites are reported as "very pure," and a sample examined by Dr. Genth yielded 35.46 per cent. of copper. "This," he says, "will be the principal ore of the mine, and as it separates very easily from the associated minerals, it will not be difficult to send ore of a high per centage to market. During my presence at the mine," he continues, "a body of very rich ore was struck, which was a mixture of copperglance, malachite, and chrysocolla, and which yielded by assay $44\frac{18}{100}$ per cent. of metallic copper."

In order to open the mine properly, and to dress up the ores to the highest per centage, the owners determined to procure the best machinery that could be had, and to that end ordered from the Messrs. Norris, of Norristown, Pa., a first-class engine, cornish pumps and crusher, all of the newest and most approved patterns. These are all now in place, having been erected under the supervision of an engineer sent out from the Norristown works for the purpose, and together with the ample dressing floors, water tanks, &c., &c., constitute as perfect an equipment as can be found in Guilford county. They are all under cover of a new building, 70 by 70 feet, put up in the most durable and substantial manner, and all very compact and convenient.

In fact, strength and permanency rather than cost have been kept in view in everything that has been done. The superintendent writes in November, 1859: "I slight nothing, and will have as convenient a mill and as good a mine as there is in North Carolina."

These heavy and expensive improvements have exhausted the means of the Proprietors, and they are now compelled to

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ask aid from others just as they are near the fruition of their labors. Indeed 'tis seldom the case that private individuals have been willing to make so large an outlay, and take the entire risk of an enterprise of this sort, without the assistance of a Company. And such now is their confidence in the property, that it is only necessity which induces them to interest others with them. Under any organization, however, they intend to retain an interest which shall realize to them a portion of the benefits of the future development of the Mine.

In order then that means may be raised to carry on the mine, they propose to transfer a charter, hereto annexed, and which is one of the most liberal ever granted by the State of North Carolina.

The undersigned has been authorized to receive subscriptions to the stock of the Company, which it is proposed to establish upon a basis which precedent seems to have fixed for properties of a like kind. For One Dollar paid in, a certificate for *one full share* of the par value of Five Dollars will be issued, to the extent of one hundred thousand shares, which will carry with them the title in fee to the whole of the real estate and personal property of every sort upon the premises, without charge of "royalty," or other payment of any description.

Such is the already complete and finished character of the Mine's equipments, and such the appearance of the Vein at its present depth, that Professor Haeusser calculates that with an outlay in the Mine of less than \$5,000, it will at once begin to yield a very handsome profit to the Company. "Sink 60 feet below the present level and then drive," writes the Superintendent, in December last, "and I will show the best vein in the County."

To be beyond all contingencies however, and to have the nucleus of a fund always in hand, 'tis proposed to leave \$10,000 out of the subscriptions in the Treasury of the Company.

The undersigned has taken some pains to have the property examined by practical miners, as well as by geologists, and is satisfied from their Reports, that this mine will prove quite equal, if not superior to any in its vicinity, and in this belief solicits subscriptions to its stock.

Specimens taken from the Levels where they are now at work, can be seen at his office, and he invites the attention of Geologists to them.

E. G. PERINE,
Agent for the Owners.
 No. 24 South St.

BALTIMORE, March, 1, 1860.

P. S. Mr. Haeusser notices in his Report a "disturbance in the rocks in the S. W. Level," which he says "will at 100 feet deeper have disappeared entirely, or be at least of a very subordinate nature."

This prediction has been *already* confirmed. The disturbance has been cut through since he made his report, and 8 feet more driven in that level, where the vein again appears 6 feet wide. Any geologist or miner will know how to appreciate the value of this discovery.

This 8 feet added to the 96 given in Mr. Haeusser's report, makes 104 feet from the Shaft in this S. W. Level.

LETTER FROM THE HON. JNO. A. GILMER.

HOUSE OF REPRESENTATIVES, }
February 29th, 1860. }

I am asked by Mr. E. G. Perine, of Baltimore, to state what I know in relation to the Cambridge Copper Mine, in Guilford County, N. C., its title, and character for minerals.

I have examined the title repeatedly, and know that to be good and unquestionable. The Company was legally and regularly organized according to the provisions of the Charter, in my office in Greensboro, N. C., and under my direction. All this I am satisfied has been correctly done.

This mineral estate is in the range and neighborhood of the Gardner Hill. Ever since I have heard of the property, great confidence has been expressed in its value for minerals. Until within the last few years, it was owned by a poor man, Daniel Russell, who could do nothing efficient with the property. Within the last few years, some prospecting has been made in the mine, and as I am advised with much cheer and promise.

JOHN A. GILMER.

DR. F. A. GENTH'S REPORT ON THE CAMBRIDGE
COPPER MINE.

Guilford County, N. C.

The Cambridge Copper Mine is situated in Guilford County, N. C., between 6 and 7 miles S. W. of Greensborough, 4 miles N. E. of Jamestown, about $1\frac{1}{2}$ miles from the Gardner Hill mine, and half a mile from the North Carolina Central Railroad, and embraces 200 acres of land, three quarters of which is cleared and partly under cultivation, including 30 acres of good meadow land, which cuts a large supply of hay, whilst on the other portion grows valuable timber. The improvements consist of a large and convenient cottage house, with out-houses, stable, cribs, barn, &c., and a tenant house for the farm, and about half a mile distant, and in the immediate neighborhood of the mine, of five habitable cabins with good chimneys, office, smith-shop, stable for four horses and barn, coal-house, shed-floor for the separation of ore, and a large shed 40 by 40 feet over a whim of $9\frac{1}{2}$ feet drum and 38 feet sweep.

The geological formation extending over the whole tract, is what many geologists might feel inclined to call syenite or hornblendic granite, which however, on closer examination, proves to be a true Diorite, changing here and there into Amphibolite by the decrease of the feldspathic constituents.

At least four veins can be traced over the property, three of which appear to run parallel and show the same mineralogical character, whilst the other, which seems to intersect them, is not sufficiently explored and developed to form an opinion on the same.

The quartz of the parallel veins is of a greyish white color, not very vitrious, of a crystalline structure, and has frequently the impressions of Chalybite or Carbonate of Iron, which latter by the dissolving action of atmospheric waters, has been removed; here and there it is associated with chlorite. It is obvious that veins showing such a great similarity in their outcrops, and having such a marked character, promise to yield

similar results. As only the middle one of these veins, which appears to be the largest, and which lies about 300 feet from the western, and 120 feet from the eastern vein, has been explored, a fuller description of this may serve to form an opinion on the character of the two others.

Its out-crop is very bold, and can be traced a long distance over the property. It strikes about N. 30° E. and dips at an angle of 30° towards East. This is the average dip which the vein has shown from the surface opening down to 76 feet depth, and the same which has been ascertained by repeated trials in the mine; it should be remarked however, that at the bottom of the workings it seems to become less horizontal. An opening made many years ago on the out-crop of the vein, gave such strong evidences of the existence of rich copper ores, that the former owners of the property, five years ago were induced to sink a shaft. This is located about 110 feet eastward of the vein, has a width of 5 by 8 feet, has cut the vein at about 60 feet depth, and has been sunk to a depth of 76 feet. The water, which is rather strong, a favorable indication of a good vein, is raised by buckets.

The vein itself has been developed by the shaft, the little cross cut towards the vein, and the workings done on the same for a distance of 10 or 12 feet, principally towards the North. The Southern end was, at the time of my visit, not sufficiently cleared out to form an opinion on the vein, although a considerable quantity of rich copper ore was visible. The Northern end of the workings showed the vein beautifully developed, and on an average five feet in width. The walls are perfect, and the salvage between the vein and both the hanging and foot walls, consists of talcose slate from 8 to 12 inches in thickness, the latter carrying a considerable quantity of copper pyrites. The vein itself shows the quartz very much broken up and mixed with ores, so that it can be worked with great facility. The large proportion of carbonate of iron, which, as stated above, characterizes the three parallel veins, has disappeared and been replaced by more valuable ores. This is a fortunate circumstance, because this mineral, if it *predominates* in a copper vein, becomes sometimes troublesome, especially if it is mixed

with the copper pyrites, from which it cannot be easily separated mechanically on account of their specific gravities being nearly the same; whilst the advantage, which it may have as a flux, would not outweigh the reduction in the percentage of copper, which would be produced by its presence.

I have observed the following ores in the vein: Red and black oxide of copper, copperglance, indigo-copper, copper pyrites, malachite (green carbonate,) and chrysocolla (silicate of copper,) and auriferous pyrites. The auriferous pyrites occupies the upper portion of the lode near the hanging wall. A sample, which I considered a fair specimen to ascertain its value, was found to yield $4\frac{74}{100}$ of gold in 2,000 pounds of ore, (which was about $\frac{2}{3}$ pyrites and $\frac{1}{3}$ quartz,) and panning of the detritus of the vein showed also only a trace of gold. I consider this small yield of gold a very favorable feature of the vein, because the presence of this metal has been *the curse* of many a valuable copper mine, which would probably have been fully developed for copper and be in a paying condition at present, had not the gold constantly held out an inducement to make the mine pay its own way, and instead of investing the necessary funds in the same, has assisted to make a very nicely looking stock concern out of it, just the thing for a speculation. The iron pyrites, though it contains copper pyrites, is generally not so intimately mixed with it as is often the case, and the latter ore, which predominates in the Cambridge mine, is often quite pure or even mixed with copper glance. I have examined a sample of the yellow copper pyrites which appeared to be free from copper glance, and found that it yielded $35\frac{46}{100}$ per cent. of copper. This will be the principal ore of the mine, and as it separates very easily from the associated minerals, it will be not difficult to send ores of a high per centage to market. During my presence at the mine a body of very rich ore was struck, which was a mixture of copper-glance, malachite and chrysocolla, and which yielded by assay $44\frac{18}{100}$ per cent. of metallic copper.

From my observations and the examination of the veins on the surface, and the workings and explorations made on the middle one, as well as from a reconnoissance of the operations at the Gardner Hill mine, and the appearance of the ores at

that property, I do not hesitate to say, that the prospects of the Cambridge mine are excellent, and I consider the appearance of it at the present low depth of 76 feet, very encouraging, believing that with economy, the ores at the present depth will pay at least half the expenses, and if they increase in the same ratio in depth, which we have every reason to expect, will soon pay a handsome profit.

The quantity of water in the vein will be quite sufficient for the supply of a powerful engine and the dressing of the ores.

F. A. GENTH.

PHILADELPHIA, June 23, 1859.

PROFESSOR HAEUSSER'S REPORT.

BALTIMORE, Feb. 10, 1860.

E. G. PERINE, Esq.,

24 South St., Baltimore.

SIR:—Agreeably to your request, I have made a geological examination of the Cambridge mine, Guilford county, N. C., and I herewith transmit you the results of my observations.

The Cambridge mine embraces 192 acres, all under fence, with the exception of about 25 acres of timbered land. The shape of the land is an oblong square; from east to west it is half a mile, from north to south 1-3 of a mile in extent.

The mine is located within half a mile of the N. C. Central R. R., and close to the county road, from Greensboro to Jamestown. It is 4 miles from Jamestown, 7 miles from Greensboro and $1\frac{1}{2}$ miles from the Gardner Mine. The land produces fine fruit, corn, wheat, cotton and grass, and has several fine springs upon it.

The machinery at the Mine is all new, very complete, has been put up and arranged in a highly satisfactory manner, and will work the mine for some years.

There is a sufficient and never-failing supply of water for dressing purposes, engine, &c., and the distribution of the water for the dressing machinery, has been arranged in a very practical and efficient manner.

The engine house covers 70 feet square. There are two boilers, each 36 feet long, and 30 inches in diameter. These two boilers use only 1 cord of wood in 12 hours. The engine is of 30 horse power, but can be worked to 40. It is capable of developing the mine to a depth of 400 feet.

The crushers are 20 inches in diameter, and are represented as being capable of crushing 15 tons of ore in 12 hours.

The pumps are 7 inches in diameter and work well.

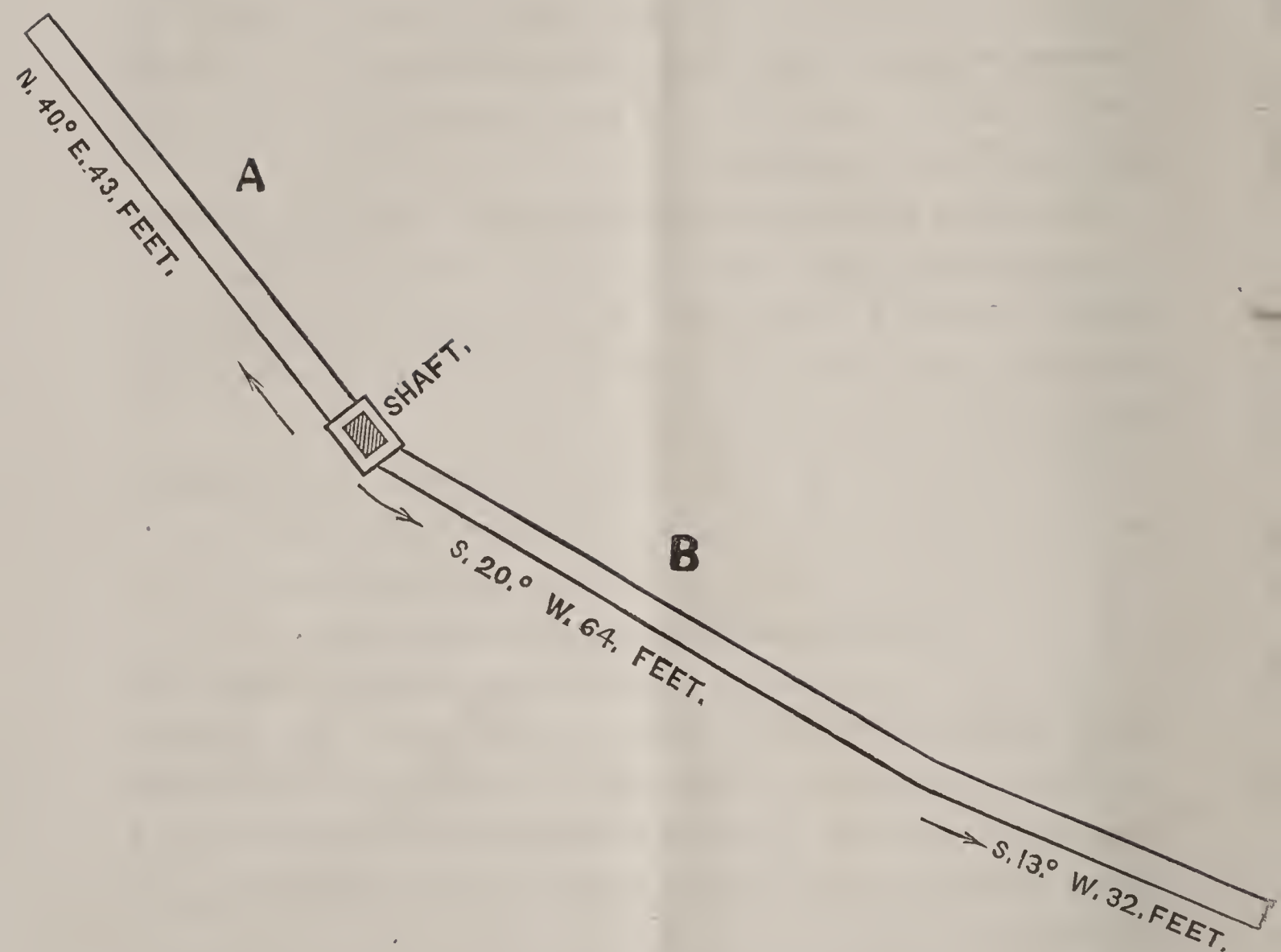
A few remarks about the buildings :

There are two boarding places on the premises, which will accommodate 10 boarders each; 3 other cabins for families, an office, store room, blacksmith-shop, coal-house, stables for six horses; then the plantation house with six rooms, and a large chamber, stable, barn, outside kitchen, milkhouse and smokehouse.

The shaft and the engine house are located in a depression of the ground.

The shaft is sunk perpendicular to a depth of 84 feet, thence 14 feet more on the slope of the vein. The vein was struck in the shaft at a depth of 75 feet, and has there a very good appearance.

At 84 feet two levels have been driven on the vein, as illustrated in the annexed ground plan.



The N. level A runs N. 40° E. and has been carried on for 43 feet.

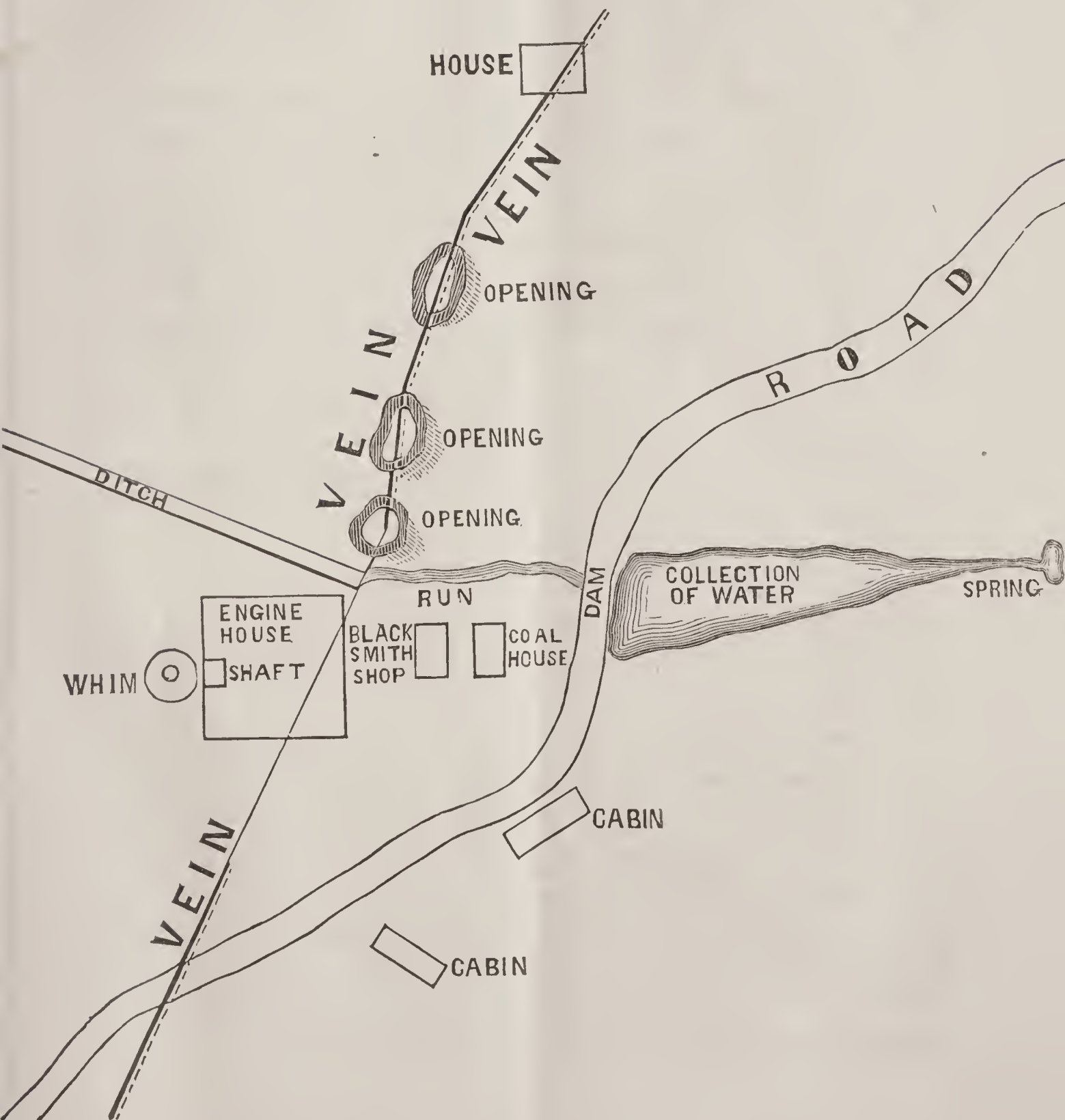
The S. level B has been driven 64 feet in a direction S. 20° W. and thence 32 feet in a direction S. 13° W.

The total amount of underground work done is :

Sinking $\left\{ \begin{array}{l} 84 \text{ feet perpendicular.} \\ 14 \text{ feet on the slope.} \end{array} \right.$

Drifting—139 feet.

Character of the vein.—The out-crop of the vein can be traced from the southern boundary line to the northern one. The main line of bearing is N. 35° E., with the exception of that part which has been cut in the S. W. level, and which strikes from N. 12° E. to N. 20° E. At the engine-house the out-crop of the vein disappears for a short distance beneath the rocks, (pitches below the slates,) but farther on, in a N. E. direction, the out-crop is re-appearing and can be traced beyond the boundary line of the property. The out-crop shows the usual characteristics of auriferous and cupriferous quartz veins.



The principal gangue of the vein is quartz, which is imbedding masses of chalybite, which are gradually disappearing towards a greater depth. The ores occur imbedded in the quartz; they are principally copper pyrites, (very pure,) iron pyrites, carbonate of copper, copper-glance, silicate of copper, metallic copper, (rarely in the out-crop.) Occasionally, but rarely, Barnhardite occurs, an ore which contains 46 per cent. of copper and which has not been found at any of the other copper mines in the neighborhood of the Cambridge mine. Of the copper ores mentioned, copper pyrites will be the predominating and most important ore of the mine, the other ores occurring only in very subordinate proportions.

A vein of such a description can be worked with profit when the proportion of quartz to the imbedded ores is such that the ores can be concentrated with a reasonable expense.

The vein at the Cambridge Mine, at a depth of 84 feet, is not in a condition to be worked with profit, for the reason that the quartz predominates too much over the copper ores. The latter are too much scattered through the quartz. The question arises :

Is it reasonable to suppose the copper ores to concentrate gradually towards a greater depth?

In my opinion the concentration will *certainly* take place. The reasons are the following :

1. The vein is a regular one.
2. The walls in the N. E. level, at a depth of 84 feet, where the vein shows its regularity remarkably well, are very regular, the dip of the foot-wall being nearly uniformly at 49° and that of the hanging wall at 50° to the S. E.
3. The geological nature of the wall-rocks is favorable. The foot-wall rock is a distinctly stratified quartzose slate, and the hanging wall rock a regularly laminated feldspathic slate and talcose slate. The unfavorable aspect of the vein in the S. W. level is owing to the disturbance which the rocks here have experienced; it is indicated on the surface by a considerable depression in the ground. One hundred feet deeper, these disturbances at this locality will have disappeared entirely, or they will be at least of a very subordinate nature.

In order to develop the Cambridge Mine, it is necessary to sink deeper with the view of striking the vein at those points where the copper ores are sufficiently concentrated in the quartz to allow successful and profitable mining. I should propose to sink the present pump shaft from the 84 feet level, 100 feet deeper, (14 feet are sunk already.) The sinking expenses will amount to \$16.00 per foot, or to \$1,600 for 100 feet. Allowing \$200 for contingencies, the total expenses will amount to not over \$1,800.

There are at the mine 70 feet of pump yet, so that but 30 feet more are required to carry the shaft down to the proposed depth.

2. Having sunk 100 feet deeper, I should propose to drive levels on the vein, in a N. E. and S. W. direction.

When the levels have been driven to some distance from the shaft, the ground should be extensively prepared for taking out large quantities of ore.

As soon as these preparatory works are finished, I am of opinion that copper ores can be raised in such quantities, that they will not only cover all expenses of the mine, but yield a handsome profit to the owners.

In my opinion a capital of \$5,000 will be fully sufficient to attain the objects proposed.

Respectfully yours,

ERNEST HAEUSSER,
Geologist.

C O P Y .

AN ACT TO INCORPORATE THE CAMBRIDGE
COPPER COMPANY.

SECTION 1. Be it enacted by the General Assembly of the State of North Carolina, and it is hereby enacted by the authority of the same,

That James Sloan, James Fitz James, William Halsey, and Burr Higgins, and their associates, successors and assigns, are hereby created and constituted a body politic and corporate, by the name and style and title of the Cambridge Copper Company, for the purpose of working, mining and exploring for Gold, Copper, and all other metals and minerals, and for mining, vending, smelting and working the same; and for working and manufacturing; and by that name may sue and be sued, plead and be impleaded, appear, prosecute and defend, in any court of law or equity whatsoever, in all suits and actions; may have a common seal and the same alter at pleasure, and may enjoy all the privileges and powers incident to mining, smelting and manufacturing corporations; and may also purchase, hold and convey any real and personal property or estate, as capital stock to the amount of one million of dollars.

SEC. 2. *Be it further enacted*, That the said corporation may divide their stock into such number of shares, and provide for the sale and transfer thereof, in such manner and form as said corporation shall from time to time deem expedient, and may levy and collect assessments, forfeit and sell delinquent shares in such manner as the By-laws may direct, and shall issue scrip for the shares of stock, and each share shall entitle the holder thereof to one vote in meetings of stockholders; and also said corporation shall have power to enact and pass all such By-laws and regulations as they may deem necessary, not repugnant to the laws of this State and of the United States.

SEC. 3. *Be it further enacted*, That it shall be lawful for the corporation to be managed by three or five directors, who shall

have power to fill vacancies in their own body, shall continue in office until others are elected or appointed ; and also to exercise all such rights as by this act is conferred and granted ; but the stockholders shall have the right to elect said directors annually. One of whom shall be an actual resident of this State.

SEC. 4. *Be it further enacted*, That the aforesaid James Sloan, Wm. Halsey, James Fitz James, and Burr Higgins, shall manage the affairs of said corporation as directors, until others are elected or appointed, shall meet and organize by choosing from their own body a President, and appoint a Secretary and other employees, make such By-laws as for the time being they shall deem expedient, and may then proceed to business.

SEC. 5. *Be it further enacted*, That this corporation shall exist for sixty years, and this act be in force from its passage.

Read three times and ratified in General Assembly this	} THOS. SETTLE, JR., S. H. C. HENRY T. CLARK, S. S.
16th day of February, 1859.	

STATE OF NORTH CAROLINA,
OFFICE OF SECRETARY OF STATE.

I, Rufus H. Page, Secretary of State, in and for the State of North Carolina, do hereby certify that the foregoing is a true copy of the original on file in this office.

Given under my hand, this 25th day of February, 1859.

RUFUS H. PAGE,
Secretary of State.

OFFICE OF THE CAMBRIDGE COPPER COMPANY, }
Guilford Co., North Carolina, Sept. 28, 1859. }

I, James Fitz James, Secretary of the Cambridge Copper Company, do hereby certify that the foregoing is a true copy of the charter of this Company, now in my possession.

JAMES FITZ JAMES,
S. C. C. Co.

